

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: MATTHEW SCHEELE
ARTHROCARE CORPORATION
BUILDING TWO SUITE 100
7500 RIALTO BLVD.
AUSTIN, TX 78735

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing
(day/month/year)

29 JAN 2010

Applicant's or agent's file reference

A-25-1PC

FOR FURTHER ACTION See paragraphs 1 and 4 below

International application No.

PCT/US2009/067001

International filing date

(day/month/year)

07 December 2009

Applicant:

ARTHROCARE CORPORATION

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until **30 months** from the priority date (in some Offices even later); otherwise, the applicant must, within **20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/US
Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450
Facsimile No. 571-273-3201

Authorized officer:

Blaine R. Copenheaver

Telephone No. 571-272-7774

Form PCT/ISA/220 (January 2004)

(See notes on accompanying sheet)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference A-25-1PC	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US2009/067001	International filing date (<i>day/month/year</i>) 07 December 2009	(Earliest) Priority Date (<i>day/month/year</i>)
Applicant ARTHROCARE CORPORATION		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed.
☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. 1.

2. ☐ Certain claims were found unsearchable (see Box No. II).

3. ☐ Unity of invention is lacking (see Box No. III).

4. With regard to the title,

- ☒ the text is approved as submitted by the applicant.
☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

- ☒ the text is approved as submitted by the applicant.
☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. 9
☒ as suggested by the applicant.
☐ as selected by this Authority, because the applicant failed to suggest a figure.
☐ as selected by this Authority, because this figure better characterizes the invention.
- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2009/067001

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61B 18/14 (2010.01)

USPC - 604/35

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8) - A61B 18/14; A61M 1/00 (2001.01)

USPC - 604/35, 114; 606/34; 607/99

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PatBase

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/0097129 A1 (DAVISON et al) 22 May 2003 (22.05.2003) entire document	1-22
A	US 2002/0151917 A1 (BARRY) 17 October 2002 (17.10.2002) entire document	1-22
A	US 6,379,350 B1 (SHARKEY et al) 30 April 2002 (30.04.2002) entire document	1-22

☐ Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"Z" document member of the same patent family

Date of the actual completion of the international search

20 January 2010

Date of mailing of the international search report

29 JAN 2010

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents

P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-3201

Authorized officer:

Blaine R. Copenheaver

PCT Helpdesk: 571-272-4300

PCT OSP: 571-272-7774

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: MATTHEW SCHEELE
ARTHROCARE CORPORATION
BUILDING TWO SUITE 100
7500 RIALTO BLVD.
AUSTIN, TX 78735

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing
(day/month/year)

29 JAN 2010

Applicant's or agent's file reference
A-25-1PC

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/US2009/067001

International filing date (day/month/year)

07 December 2009

Priority date (day/month/year)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - A61B 18/14 (2010.01)

USPC - 604/35

Applicant ARTHROCARE CORPORATION

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/US
Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450
Facsimile No. 571-273-3201

Date of completion of this opinion

20 January 2010

Authorized officer:

Blaine R. Copenheaver

PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2009/067001

Box No. 1 Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed.
 - ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:
 - a. (means)
 - ☐ on paper
 - ☐ in electronic form

 - b. (time)
 - ☐ in the international application as filed
 - ☐ together with the international application in electronic form
 - ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US2009/067001

Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement			
1. Statement				
Novelty (N)	Claims	<u>1-22</u>	YES	
	Claims	None	NO	
Inventive step (IS)	Claims	None	YES	
	Claims	1-22	NO	
Industrial applicability (IA)	Claims	1-22	YES	
	Claims	None	NO	
2. Citations and explanations:				
<p>Claims 1-22 lack an inventive step under PCT Article 33(3) as being obvious over Davison et al. (hereinafter referred to as Davison). Regarding claim 1, Davison discloses an electrosurgical instrument for removing tissue from a target site within or on a patient's body (abstract; figs. 50A, 56B-56C) comprising a shaft (1802), wherein the shaft has a proximal end (1802b) and a distal end portion (1802a); an electrode assembly (figs. 56B-56C) comprising a substantially flat active screen electrode (1810) positioned on the distal end portion of the shaft, at least one return electrode (1820) positioned on the shaft and spaced away from the active electrode, and at least two securing electrodes (1822) positioned on the distal end portion of the shaft and electrically connected to the screen electrode; an electrically insulating support member (1808) upon which the screen electrode is mounted, the support member engaging a portion of the shaft at least one securing electrode for securing the screen electrode; and wherein the screen electrode comprises an aperture (1840), the aperture has an aperture area and an aperture perimeter (fig. 56B), but the embodiment shown in figures 56B-56C lacks the teaching of the aperture perimeter substantially greater than a corresponding circular perimeter. However, Davison does teach in the embodiment shown in figure 80B a screen electrode (3008) comprises an aperture (3009) an aperture perimeter substantially greater than a corresponding circular perimeter and further teaches that the screen acts as a baffle to impede the flow of solid material into the aspiration channel, and to trap the solid material in the vicinity of at least one of the plurality of active electrodes, whereby the trapped material may be readily digested (para. 0033). It would have been obvious to one of ordinary skill in the art at the time of the invention to form the screen electrode of the embodiment shown in figures 56B-56C to have an aperture perimeter substantially greater than a corresponding circular perimeter as taught by the embodiment shown in figure 80B in order to trap solid material and digest it.</p> <p>Regarding claims 2-4, the modified Davison discloses the instrument of claim 1 but lacks the teaching of wherein the aperture comprises a [Cl. 2] star, [Cl. 3] asterisk, or [Cl. 4] lightning bolt shape. However, Davison does teach that the screen voids can have a diamond-like shape or any configuration (para. 0395) and may provide sharp edges that are conducive to formation of plasma (para. 0386). It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to form the aperture in the embodiment shown in figures 56A-56B of Davis to comprise a star, asterisk, or lightning bolt shape in order to provide sharp edges that are conducive to formation of plasma.</p> <p>Regarding claim 5, the modified Davison discloses the instrument of claim 1 but the embodiment shown in figures 56A-56B lacks the teaching of wherein the ratio of the aperture perimeter to the aperture area is greater than a ratio of the corresponding circular perimeter to a corresponding circular aperture area. The embodiment shown in figure 80B does teach of wherein the ratio of the aperture perimeter to the aperture area is greater than a ratio of the corresponding circular perimeter to a corresponding circular aperture area and further teaches that the screen acts as a baffle to impede the flow of solid material into the aspiration channel, and to trap the solid material in the vicinity of at least one of the plurality of active electrodes, whereby the trapped material may be readily digested (para. 0033). It would have been obvious to one of ordinary skill in the art at the time of the invention to form the screen electrode of the embodiment shown in figures 56B-56C to have an aperture perimeter substantially greater than a corresponding circular perimeter as taught by the embodiment shown in figure 80B in order to trap solid material and digest it.</p> <p>Regarding claims 6-11, the modified Davison discloses the instrument of claim 1 and Davison teaches of [Cl. 6] an aspiration lumen (1840') within the shaft having a distal opening coupled to the screen electrode to inhibit clogging of the lumen and in fluid communication with the aperture (para. 0033); [Cl. 7] wherein the screen electrode is brought adjacent a tissue structure immersed in electrically conductive fluid and the electrically conductive fluid completes a conduction path between the screen electrode and the return electrode (para. 0015); [Cl. 8] wherein upon the application of a sufficiently high frequency voltage between the screen electrode and the return electrode to vaporize the conductive fluid in a thin layer over at least a portion of the screen electrode to induce the discharge of energy from the vapor layer (para. 0016); [Cl. 9] wherein the discharge of energy from the vapor layer is sufficient to form a plasma (para. 0015 and 0016); [Cl. 10] wherein the vapor layer contacts the tissue structure and is capable of ablating a portion of the tissue structure (para. 0016); and [Cl. 11] at least one securing electrode (1822) positioned on the distal end portion of the shaft and electrically connected to the screen electrode.</p> <p>Regarding claims 12-22, [Cl. 12] (see explanation of claim 1 above); [Cl. 13] (see explanation of claim 2 above); [Cl. 14] (see explanation of claim 3 above); [Cl. 15] (see explanation of claim 4 above); [Cl. 16] (see explanation of claim 5 above); [Cl. 17] (see explanation of claim 6 above); [Cl. 18] (see explanation of claim 7 above); [Cl. 19] (see explanation of claim 8 above); [Cl. 20] (see explanation of claim 9 above); [Cl. 21] (see explanation of claim 10 above); and [Cl. 22] (see explanation of claim 11 above).</p> <p>Claims 1-22 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.</p>				